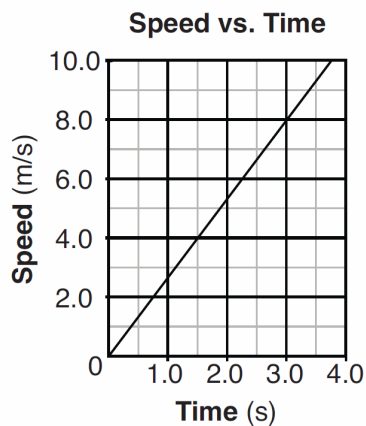


Speed Time Graphs

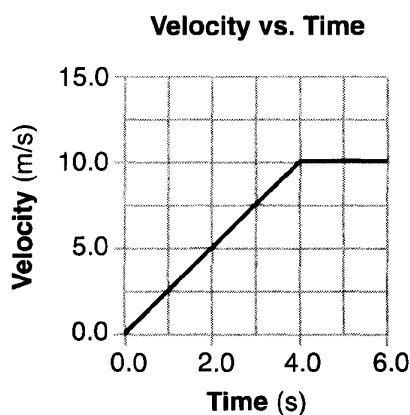
Displacement from Area

1. The graph below shows the relationship between the speed and elapsed time for an object falling freely from rest near the surface of a planet.



What is the total distance the object falls during the first 3.0 seconds?

- A) 12 m B) 24 m C) 44 m D) 72 m
2. Base your answer to the following question on the graph below, which represents the motion of a car during a 6.0-second time interval.



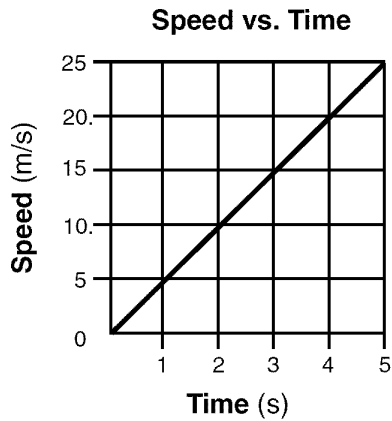
What is the total distance traveled by the car during this 6.0-second interval?

- A) 10. m B) 20. m C) 40. m D) 60. m



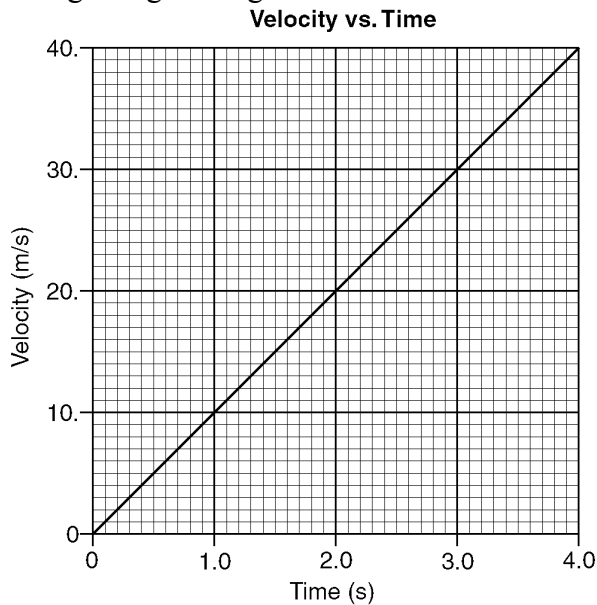
Speed Time Graphs

3. The graph below represents the relationship between speed and time for an object moving along a straight line.



What is the total distance traveled by the object during the first 4 seconds?

- A) 5 m B) 20 m C) **40 m** D) 80 m
4. The graph below shows the velocity of a race car moving along a straight line as a function of time.

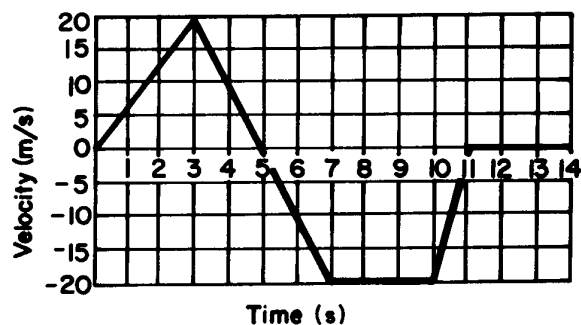


What is the magnitude of the displacement of the car from $t = 2.0$ seconds to $t = 4.0$ seconds?

- A) 20. m B) 40. m C) **60. m** D) 80. m
-

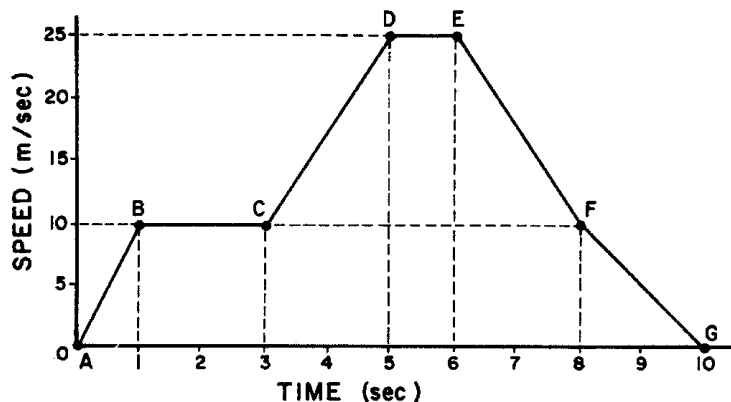
Speed Time Graphs

Base your answers to questions 5 and 6 on the graph below which represents the relationship between velocity and time for a 2.0-kilogram cart that is initially at rest and starts moving northward.



5. At which value of t will the cart be back at the starting point?
- A) $t = 2.5$ s B) $t = 8.5$ s C) $t = 3$ s D) $t = 5$ s
6. In which direction is the cart traveling at $t = 4$ seconds?
- A) north B) east C) south D) west

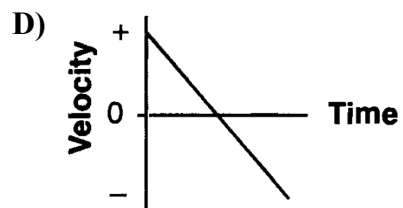
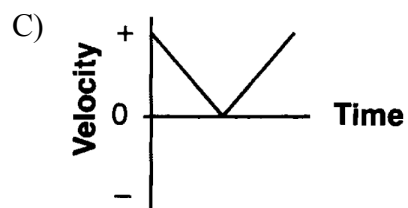
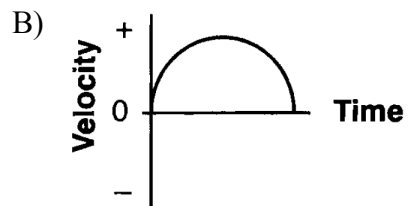
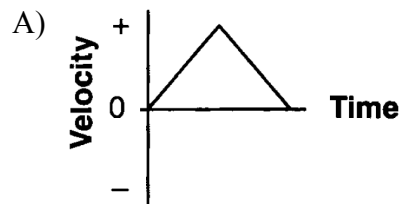
Base your answers to questions 7 through 9 on the graph below which represents the relationship between speed and time for an object in motion along a straight line.



7. What is the total distance traveled by the object during the first 3 seconds?
- A) 15 m B) 20 m C) 25 m D) 30 m
8. What is the average speed of the object during the time interval $t = 6$ seconds to $t = 8$ seconds'?
- A) 7.5 m/sec B) 10 m/sec C) 15 m/sec D) 17.5 m/sec
9. What is the acceleration of the object during the time interval $t = 3$ seconds to $t = 5$ seconds?
- A) 5.0 m/sec^2 B) 7.5 m/sec^2 C) 12.5 m/sec^2 D) 17.5 m/sec^2

Speed Time Graphs

10. A student throws a baseball vertically upward and then catches it. If vertically upward is considered to be the positive direction, which graph best represents the relationship between velocity and time for the baseball? [Neglect friction.]



Answer Key

Area under vt graph = distance

1. A
 2. C
 3. C
 4. C
 5. B
 6. A
 7. C
 8. D
 9. B
 10. D
-

**Question ID's in
Numerical Order**

9. 790
 8. 791
 7. 792
 6. 1458
 5. 1459
 4. 4277
 3. 4771
 2. 5297
 10. 5376
 1. 5451
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